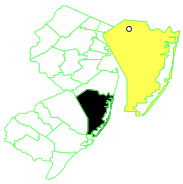
NAVAL AIR ENGINEERING STATION
NEW JERSEY
EPA ID# NJ7170023744

EPA REGION 2
CONGRESSIONAL DIST. 04
Ocean County
Lakehurst



Site Description

The Naval Air Engineering Station (NAES) site covers 7,382 acres and has been used continuously for various research, maintenance, firefighter training, testing, and disposal activities conducted by the U.S. Navy since the 1920s. Although the size of the Lakehurst facility and its operations have changed over the years, its major function always has been development and testing of fleet support systems. On the basis of historical records, aerial photographs, field inspection, and personnel interviews, the Navy identified 44 potentially contaminated areas at NAES. The 44 areas included landfills, open pits, unlined lagoons, and drainage ditches, several of which are near freshwater wetlands. The Navy reports that fuels, oils, metals, solvents, and various other organic compounds were disposed of on the facility property. In 1988, the EPA and the NAES agreed that 42 areas at the facility should be subject to further investigation. Fort Dix Military Reservation, agricultural lands, woodland, Lakehurst Borough, and a State wildlife refuge area are adjacent to the site. NAES and the surrounding area are located within the Pinelands National Reserve. The facility makes up a major portion of the Toms River drainage basin, and several headwater tributaries originate on site, including Manapaqua Brook, Obhanan Ridgeway Branch, Harris Branch, and North Ruckels Branch. Several ponds, both natural and excavated, are on the site.

The NAES employs 4,800 people, and 1,370 people live on base. Most of these residents are trainees who leave after about 6 months. Water supplies within a 3-mile radius of the site are from public wells; the system serves approximately 7,100 people. The closest well is about 200 feet from the site. Monitoring has not detected any well contamination. Local surface water is used for recreation and irrigation.

Site Responsibility: This site is being addressed by the Navy, through Federal actions.

NPL LISTING HISTORY
Proposed Date: 09/01/85
Final Date: 07/22/87

Threats and Contaminants

Groundwater and soil sampling during the late 1980s revealed the presence of volatile organic compounds (VOCs) including benzene and trichloroethylene (TCE), and petroleum hydrocarbons. An extensive, environmentally sensitive pineland preserve supporting recreational, wildlife habitat, and agricultural uses surrounds the site.

Cleanup Approach

The site has been addressed by focusing on those sites where contamination is most significant (e.g. areas of known ground water contamination). The Navy began an intensive study of soil, groundwater, surface water, and sediment contamination at 42 areas of the NAES in fall, 1988. This investigation was completed in summer, 1990. Based on the investigation, enough information was available to propose remedial actions at several sites (see below). Because of data gaps at some areas, a supplemental investigation was begun in summer, 1991. A report and risk assessment were submitted to EPA in May, 1992. The information in the supplemental report and preceding reports is the basis for making environmental cleanup decisions for the remaining sites.

Response Action Status

Area C: The 1988-90 study showed groundwater and soil contamination (VOCs and semi-volatile organics) in this area. Area C was the location of a fire training area and fuel tank farm. In September, 1990, NAES proposed to pump and treat groundwater as an interim action (plume containment). The Record of Decision (ROD) was signed by NAES and EPA on February 4, 1991. The system is currently operational. A ROD for a final action at Area C was signed in early 1996. This decision calls for a continuation of the pump and treat system with minor modifications (changing pumping rates and adding pumping wells). Also, the ongoing "removal actions" at Area C (soil vapor extraction at Site 16 and a bioventing system at Site 17) are to continue until cleanup goals are achieved.

Area H: The 1988-90 study showed groundwater and soil contamination (VOCs and semi-volatile organics) in this area. Area H is the location of engine catapult test tracks. In September, 1990, NAES proposed to pump and treat groundwater in this area as an interim action (plume containment). The ROD was signed by NAES and EPA on February 4, 1991. A ROD for a final action at Area H was signed in early 1996. This decision calls for a continuation of the pump and treat system with minor modifications (changing pumping rates and adding pumping wells). The system is currently operational.

Nine Sites: The 1988-90 study showed no contamination above state or federal action levels at Sites 15, 18, 23, 26, 27, 30, 34, 40, and Area L. In June, 1991, NAES proposed to take no further action at these sites and Area L. The ROD for these sites was signed by NAES and EPA on September 30, 1991.

Site 28: The 1988-90 study and a follow-up study showed groundwater and soil contamination (VOCs) at this site. The site contained above and below ground storage tanks. Contaminated soil was removed by NAES and taken to a hazardous waste disposal facility. In June, 1991, NAES proposed to pump and treat groundwater at this site as an interim action (plume containment). The ROD for this site was signed by NAES and EPA on September 30, 1991. The system is currently operational. A ROD for a final action at Site 28 was signed on July 7, 1997. The decision called for modifications to the ongoing pump and treat system and the addition of a vapor extraction/sparge system to enhance remediation in the most contaminated zone.

Site 29: A removal action at an old base landfill (Site 29) was completed in late summer 1993. Over 400 rusted-out drums were removed (approximately 20 of the drums contained liquid or sludge). Based on the results of the removal action, a ROD was signed on September 26, 1994 calling for no further action at this area.

Sites 5, 19, and 21: Based on the 1988-90 study and a follow-up study, significant contamination (petroleum hydrocarbons) was found in the soils at these 3 sites. NAES conducted removal actions at the sites in spring, 1991. Based on confirmation sampling, no contaminated soils above EPA and state (New Jersey) action levels remained following the removal actions. In August, 1991, NAES proposed no further action at these 3 sites. A ROD was signed by NAES and EPA on December 30, 1991.

Site 44: Based on the 1988-90 study and a follow-up study, significant contamination (PCBs) was found in the soil at Site 44. NAES conducted a removal action at this site in spring, 1991. Based on confirmation sampling, no contaminated soils above EPA and state action levels remained following the removal actions. In August, 1991, NAES proposed no further action at this site. A ROD was signed by NAES and EPA on January 3, 1992.

Areas A and B: Based on the 1988-90 study and follow-up investigations, significant groundwater contamination was found in these 2 areas (Petroleum hydrocarbons and solvents). In August, 1991, NAES proposed to pump and treat groundwater in this area as an interim action (plume containment). The ROD was signed by NAES and EPA on March 16, 1992. The system is in operation. A ROD for a final action at Areas A and B was signed on July 7, 1997. This decision calls for minor modifications to the pump and treat system and the addition of an air sparge system to enhance plume rededication at the downgradient edge of the plume.

Area K: Area K includes Sites 4, 5, 8, 27, and 30 [and encompasses the receiving ends of the five Recovery Systems Test Sites (RSTS)]. The results of previous investigations and removal actions at Sites 5, 27, and 30 have documented the absence of any significant soil contamination posing a threat to human health or the environment. "No Further Action" RODs were signed for these portions of Area K in September and December, 1991. Additional groundwater studies were conducted in Area K. The results of these studies demonstrated the presence of a plume of chlorinated volatile organic compounds, primarily trichloroethene and tetrachloroethene in the shallow groundwater; attributable to past parts cleaning operations and

solvent storage practices at Sites 4 and 8. The ROD, signed July 7, 1997 for addressing this groundwater contamination, calls for limited groundwater pumping, to reduce higher levels of contaminants, through a sprinkler irrigation system using solar panels (during temperate months), groundwater monitoring, and the establishment of a Classification Exception Area pursuant to N.J.A.C. 7:9-6.6. The spray irrigation solar panels were installed and operating as of September 1997.

Multi-site Decisions: Investigation of a second "tier" of sites was completed in 1993. In the mean-time, several small-scale removal actions were completed. Based on the results of these removal actions and further sampling, NAES and EPA signed RODs to take no further action at Sites 2 and 38 and Sites 1, 11, and 35, on June 21, 1993. The following RODs were signed on September 27, 1993:

Sites 9, 12, 33, 36, 37, 39, 42: No further action
Site 14: Treatment of contaminated soil by asphalt batching
Sites 7, 22, 24, 25: No further action
Sites 3, 6: Treatment of contaminated soil by asphalt batching
Site 32: Treatment of contaminated soil by asphalt batching
Site 31: Groundwater - no action, long-term monitoring
Site 20: No further action
Site 13: Treatment of contaminated soil by soil vapor extraction

Asphalt roads made of petroleum contaminated soil were laid during late summer, 1994. The remedial action is now considered complete for Sites 14, 3, 6 and 32. The soil vapor extraction system at Site 13 is on line.

Additional Areas: In a ROD signed January 5, 1995, the Navy and EPA agreed on a decision to conduct a 3 year study which was to evaluate the potential for in-situ biodegradation of a groundwater plume at Areas I and J. Subsequent to this study, a final decision will be made as to whether in-situ biodegradation or pumping and treating groundwater should be considered as a long-term response action at Areas I and J. The results of the first year of the study were submitted in a report dated July 15, 1997. The data at that time indicated that natural attenuation processes, primarily in the form of intrinsic biodegradation, are active within the contaminant plume and there have been no significant changes in contaminant levels in the compliance wells. Many wells also experienced a significant reduction in contaminant levels. A 3 year report was submitted by the Navy and is currently being evaluated by EPA to determine if biodegradation can be expected to achieve cleanup goals in a reasonable time frame.

Enforcement Status

An Interagency Agreement was signed by the EPA, and the Navy on October 4, 1989. The site is participating in the Installation Restoration Program, a specially funded program established by the Department of Defense (DoD) to identify, investigate, and control the migration of hazardous contaminants at military and other DoD facilities.

Cleanup Progress

The Navy has cleaned up or is in the process of cleaning up all areas of concern at the Naval Air Engineering Station. The ROD for Operable Unit 26 (Areas I and J ground water), the final operable unit, was signed on September 27, 1999. The selected remedy is natural restoration with long-term groundwater monitoring to address the groundwater contamination in and downgradient of Areas I and J and co-metabolism to treat the higher area of groundwater contamination. Co-metabolism has been found to be ineffective, and another innovative technology, Bimetallic Nanoscale Particle (BNP) is being implemented as a pilot study. If the pilot study is effective, BNP will be expanded throughout Areas I and J. In the event that BNP is ineffective in either the pilot study or the full scale study of Areas I and J, air sparging will be implemented as a contingency remedy.

EPA anticipates that the Lakehurst facility will be one of EPA's 900 "construction completion" sites by the year 2003.

Site Repository

Ocean County Library, 101 Washington Street, Toms River, New Jersey 08757

U. S. Environmental Protection Agency Records Center, 290 Broadway, 18th Floor, NY, NY 10007